Tutorial 12

Exercise 1

Given the values:

{2341, 4234, 2839, 22, 397, 3920}

a hash table of size 7, and hash function *h(x) = x mod 7*, show the resulting tables after inserting the values in the given order.

Exercise 2

Suppose you use open hashing and the following keys are inserted:

{5, 28, 19, 15, 20, 33, 12, 17, 10}

and hash function *h(x) = x mod m.*

(a) For m = 9, show the resulting tables after inserting the values in the given order.

(b) In which slots do collisions occur?

(c) To implement linear probing, show the hash table.

Exercise 3

Consider search keys that are distinct integers. If the hash function is

h(x) = x mod 5.

and separate chaining resolves collisions, where in the hash table do the following search keys appear after being added? 4, 6, 20, 14, 31, 29

Exercise 4

Suggest a way to solve the collisions in Question 2(c) other than linear probing

Exercise 5

Implement a dictionary structure to store a set of {key, value}, so that it can store the following pairs
A,3
B, Hello World!
C,88.3

And it can give the following output.

```
{'A': 3, 'B': 'Hello World!', 'C': 88.3}
dict_keys(['A', 'B', 'C'])
```